

What is claimed is:

1. A particulate-matter-delivery system comprising:
 2. a feeder having a feeder inlet and a feeder outlet, the feeder outlet being configured to
 3. expel particulate matter at a predefined rate;
 4. an auger having an auger rotational axis, the auger being located within the feeder,
 5. the auger being operatively coupled to the feeder outlet, the auger being configured to rotate
 6. about the auger rotational axis, the rotating of the auger resulting in expulsion of the
 7. particulate matter from the feeder outlet;
 8. an agitator having an agitator rotational axis, the agitator being located within the
 9. feeder;
 10. a controller configured to intermittently produce an electrical signal; and
 11. a motor coupled to the controller, the motor being configured to receive the electrical
 12. signal from the controller, the motor further being configured to activate in the presence of
 13. the electrical signal, the motor further being configured to deactivate in the absence of the
 14. electrical signal, the motor further being mechanically coupled to the agitator, the motor
 15. being configured to rotate the agitator about the agitator rotational axis when the motor is
 16. activated, the rotating of the agitator resulting in agitation of the particulate matter in the
 17. feeder.

1 2. The system of claim 1, further comprising:
2 a storage hopper for holding particulate matter, the storage hopper having a hopper
3 outlet, the hopper outlet being fluidly coupled to the feeder inlet, the hopper outlet being
4 configured to expel the particulate matter, the particulate matter being expelled into the
5 feeder inlet.

1 3. In particulate-matter-delivery systems that employ mechanical agitators, a
2 system comprising:
3 a mechanical agitator having a rotational axis;
4 a motor being mechanically coupled to the mechanical agitator, the motor further
5 being configured to rotate the mechanical agitator about the rotational axis;
6 a controller being electrically coupled to the motor, the controller being configured to
7 intermittently activate the motor, the intermittent activation of the motor resulting in the
8 rotation of the mechanical agitator about the rotational axis.

1 4. In particulate-matter-delivery systems that employ mechanical agitators, a
2 system comprising:
3 a mechanical agitator having a rotational axis;
4 a controller configured to intermittently produce an electrical signal; and
5 a motor interposed between the controller and the mechanical agitator, the motor
6 being configured to receive the electrical signal from the controller, the motor further being
7 configured to rotate the mechanical agitator about the rotational axis in response to receiving
8 the electrical signal from the controller.

1 5. The system of claim 4, wherein the controller comprises:
2 a phase-locked loop (PLL) circuit.

1 6. The system of claim 4, further comprising:
2 a meter for monitoring the delivery of the particulate matter from the system;
3 wherein the controller comprises logic adapted to deactivate the meter;
4 wherein the controller further comprises logic adapted to activate a mechanical
5 agitator, the mechanical agitator being activated in response to the meter being deactivated;
6 wherein the controller further comprises logic adapted to deactivate the mechanical
7 agitator; and
8 wherein the controller further comprises logic adapted to activate the meter, the meter
9 being activated in response to the mechanical agitator being deactivated.

1 7. The system of claim 4, wherein the controller comprises:
2 means for activating a mechanical agitator; and
3 means for deactivating the mechanical agitator.

1 8. In a particulate-matter-delivery system having a mechanical agitator, a method
2 comprising the steps of:
3 activating the mechanical agitator;
4 deactivating the mechanical agitator; and
5 recursively repeating the activating and deactivating steps.

1 9. The method of claim 8:

2 wherein the step of activating the mechanical agitator comprises the step of activating

3 the mechanical agitator during a first time interval; and

4 wherein the step of deactivating the mechanical agitator comprises the step of

5 deactivating the mechanical agitator during a second time interval, the second time interval

6 being greater than the first time interval.

1 10. The method of claim 9:

2 wherein the step of activating the mechanical agitator during the first time interval

3 comprises the step of activating the mechanical agitator for approximately ten (10) seconds;

4 and

5 wherein the step of deactivating the mechanical agitator during the second time

6 interval comprises the step of deactivating the mechanical agitator for approximately five (5)

7 minutes.

1 11. The method of claim 9:

2 wherein the step of activating the mechanical agitator during the first time interval

3 comprises the step of activating the mechanical agitator for less than approximately twenty

4 percent (20%) of a duty cycle; and

5 wherein the step of deactivating the mechanical agitator during the second time

6 interval comprises the step of deactivating the mechanical agitator for more than

7 approximately eighty percent (80%) of the duty cycle.

- 1 12. The method of claim 8, further comprising the steps of:
- 2 metering an output of the particulate-matter-delivery system when the mechanical
- 3 agitator is deactivated.